



NEWPORT RESTORATION FOUNDATION
Founded by Doris Duke

The Newport Restoration Foundation Dendrochronology Project

Dendrochronology, also known as tree ring dating, is a scientific method of dating the timbers of a wooden house. It is extremely accurate and can help date a house to within a very narrow time period in most cases. The technique has been in existence for almost fifty years but it has only been in the last two decades or so that the technique has been viable for use in buildings in the United States.

Dendrochronology relies on the fact that trees grow more in seasons in which the weather conditions are ideal and less when they are poor. Within a given geographic area every tree of the same species will respond identically to these conditions. The measure of growth is reflected in the tree's rings. When a series of these rings is lined up it is comparable to the barcode that we all see at the grocery store, a series of fat and thin bands, and just like the barcode they can tell us a lot.

A dendrochronologist will start his work by establishing a "master chronology". In most of southern New England the predominant wood used for the framing of old houses was white oak. Since this dating technique only works within a single species, the existing master chronologies for both Massachusetts and Rhode Island were established with oak. The master chronology is created by finding a very old oak tree and taking a small, thin core that goes right to the center of the tree and ideally includes every ring of the tree. This core will be carefully dried, measured, and polished. Then the rings in the core will be measured and the relative width of each year's growth will be plotted. A host of historical samples from other trees and early buildings will also be compared and slowly a "fingerprint" develops that establishes a unique pattern from which any good historic oak timber can be dated. As older and older pieces of timber are found their overlap with existing samples will be plotted and our ability to date timber goes further and further back. Currently the Newport master chronology can date wood that was growing in the 15th century. Chronologies in England have successfully dated 11th century buildings. Moreover, a good sample can date the timber to within a single season of a single year (spring of 1696 for instance).



Newport Restoration Foundation enlisted an English firm, Oxford Dendrochronology Laboratory, to undertake this master chronology and subsequent testing. The first work was started in 2004 and a couple of dozen houses have been dated since that time. Dendrochronology does not actually date the building, it only tells you what date the tree was felled, but this information is almost as good. Since oak was worked with traditional hand tools while it was still "green" or not fully cured, felling dates correspond to within a few months of the building dates. Aside from dating buildings, data gathered from this testing has also told us a good deal about the nature of the colonial timber trade, early building practices and other information.

In underwriting this process, the Newport Restoration Foundation has offered the Rhode Island preservation community a public service as the resulting master chronology is available for use by the public. Any homeowner may utilize the results and date their own building if they so choose. Dating costs about \$2,000 through the Oxford Dendrochronology Laboratory. Details may be obtained by contacting NRF's Director of Preservation at 401-849-7300 ext. 15 or Robert@newportrestoration.org.

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